DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-014859
Date Inspected: 31-May-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name:	See Below			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG

Summary of Items Observed:
CWI Inspectors: Mr. Gu Rong Jian, Mr. Lu Fa Wen, Mr. Tian Lei

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

OBG Bay 2

This QA Inspector observed ZPMC welder Ms. Wang Chaili, stencil 045203 is using flux cored welding procedure WPS-345-1G(1F)-Repair-1 to make a buttering weld to extend the length of traveler rail 20TR1-001 in accordance with critical weld repair document BCWR-1580 revision 1. This QA Inspector measured a welding current of approximately 290 amps and 29.1 volts. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

OBG Bay 5

This QA Inspector observed ZPMC welder Mr. Jiang Yong Sheng, stencil 045240 is using flux cored welding procedure WPS-B-T-2132-3 to make floor beam stiffener plate fillet weld FB3212-001-049. This QA Inspector observed the base material appears to have been preheated with a torch, ZPMC QC CWI Inspector Mr. Tian Lei is monitoring this welding and Mr. Jiang Yong Sheng appears to be certified to make this weld. Items observed on

this date appeared to generally comply with applicable contract documents.

This QA Inspector observed four ZPMC welders, Mr. Liu Kaige, stencil 044830, Mr. Hong Yong Li, stencil 044801, Mr. Zhang Qing Quan, stencil 044774 and Mr. Wu Wan Yong, stencil 050242 have been using flux cored welding procedure WPS-B-T-2132-3 to make a buttering welds to extend the length of traveler rails 20TR1-001 through 20TR1-016 in accordance with critical weld repair document BCWR-1582. This QA Inspector observed ZPMC CWI Mr. Lin Fa Wen is monitoring this welding. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

OBG Bay 7

This QA Inspector observed ZPMC welder Mr. Xiao Di, stencil 203204 is using shielded metal arc process WPS-B-P-2112 to tack weld OBG segment 13 side plate weld SP3090-001-051. This weld joins a stiffener plate to the side plate. This QA Inspector observed a welding current of approximately 170 amps and Mr. Xiao Di appears to be certified to make this weld. This QA Inspector observed ZPMC preheated the base material prior to welding. Items observed by the QA Inspector appear to comply with project specifications.

This QA Inspector observed ZPMC welder Mr. Sun Daocan, stencil 250833 is using shielded metal arc process WPS-B-P-2112 to tack weld OBG segment 13 side plate weld SP3058-001-045. This weld joins a stiffener plate to the side plate. This QA Inspector observed a welding current of approximately 170 amps and Mr. Mr. Sun Daocan appears to be certified to make this weld. This QA Inspector observed ZPMC preheated the base material prior to welding. Items observed by the QA Inspector appear to comply with project specifications.

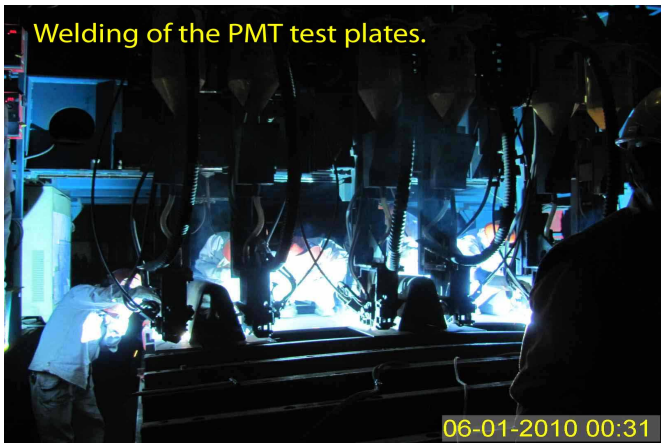
This QA Inspector observed ZPMC welder Mr. Shen Tianju, stencil 215083 is using shielded metal arc welding procedure WPS-345-SMAW-1G(1F)-Repair to make weld repairs of visual rejections on traveler rail 22TR4-001. This QA Inspector observed a welding current of approximately 140 amps and Mr. Shen Tianju appears to be certified to make this weld. ZPMC appears to have used torch to preheat the base material prior to welding and the welding electrodes are being stored in a portable electrode storage oven that is warm to the touch. Items observed on this date appeared to generally comply with applicable contract documents.

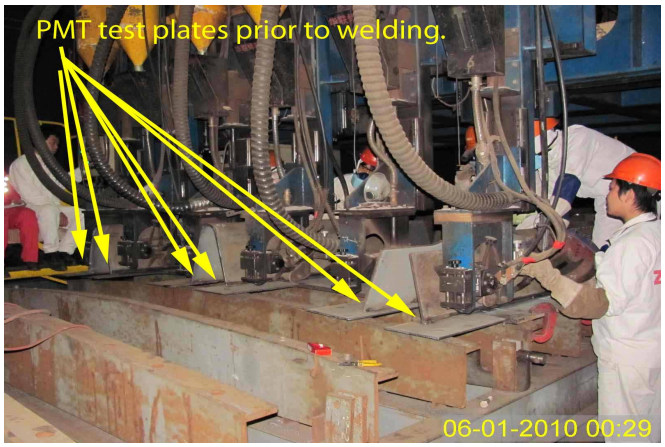
This QA Inspector observed ZPMC welder Mr. Yang Xuhe, stencil 057795 is using shielded metal arc welding procedure WPS-345-SMAW-1G(1F)-Repair to make weld repairs of visual rejections on traveler rail 22TR1-001. This QA Inspector observed a welding current of approximately 145 amps and Mr. Yang Xuhe appears to be certified to make this weld. ZPMC appears to have used torch to preheat the base material prior to welding and the welding electrodes are being stored in a portable electrode storage oven that is warm to the touch. Items observed on this date appeared to generally comply with applicable contract documents.

OBG BAY 9

This QA Inspector monitored welding of closed rib Production Monitoring Test (PMT) representing four OBG segment 13AE deck plates DP3135(PL3331A)-001, DP3135(PL3331B)-001, DP3134(PL3330B)-001 and DP3134(PL3330A)-001 which were welded using one single base plate starting at around 0010 hours using gantry #1. This QA Inspector observed six ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-5 using the gas metal arc welding process for the root pass and submerged arc welding

process for the cover pass of partial penetration groove welds on six PMT closed rib welds at the same time. ZPMC has multiple welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. This QA Inspector observed a welding travel speed of approximately 534 mm per minute for the root passes and 517 mm per minute for the cover passes. As the welding commences, each of the welders is responsible for one of the welding heads. Welder Mr. Yang Yongzeng, stencil 059418 completed the root pass of weld #1 with a welding current of approximately 350 amps and 30.8 volts and the cover pass welding current of approximately 680 amps and 24.9 volts. Welder Mr. Song Yinshu, stencil 059421 completed the root pass of weld #2 with a welding current of approximately 355 amps and 30.4 volts and the cover pass welding current of approximately 685 amps and 25.6 volts. Welder Mr. Xiang Huan Feng, stencil 59416 completed the root pass of weld #3 with a welding current of approximately 345 amps and 30.7 volts and the cover pass welding current of approximately 680 amps and 24.3 volts. Welder Mr. Jiang Shuangchen, stencil 201788 completed the root pass of weld #4 with a welding current of approximately 355 amps and 31.0 volts and the cover pass welding current of approximately 670 amps and 25.3 volts. Welder Mr. Hu Yongchang, stencil 203805 completed the root pass of weld #5 with a welding current of approximately 370 amps and 30.3 volts and the cover pass welding current of approximately 690 amps and 25.0 volts. Welder Mr. Xiang Jie, stencil 059378, completed the root pass of weld #6 with a welding current of approximately 365 amps and 30.4 volts and the cover pass welding current of approximately 690 amps and 25.3 volts. This QA Inspector performed random visual inspection of the weld joint fitups, root passes and cover passes and items observed appear to comply with project specifications. Following completion of the welding, ZPMC QC CWI Inspector Mr. Guo Yan Fei marked a 500 mm length on each of the welds as being the areas that are to be representative of this PMT test. This QA Inspector observed ZPMC NDE personnel performing ultrasonic inspections of each of the six welds in the areas where Mr. Guo Yan Fei had marked for PMT testing. Following ZPMC's UT acceptance the QA Inspector marked a total of 15 locations where macroetch samples are to be obtained. ZPMC then cut and prepared macroetch samples. ZPMC QC CWI Inspector Mr. Guo Yan Fei and ABF representative Mr. Wang Wan Cheng visually inspected these macroetch samples and documented their acceptance on the ZPMC Production Monitoring Test Plate Inspection Report sheet dated June 1, 2010. This QA Inspector visually inspected each of these macroetch samples with a 7X magnifier lense and items observed by the QA Inspector appear to comply with project specifications and the QA Inspector documented this inspection on the "Production Monitoring Test Plate Inspection Report".





Summary of Conversations:

See Above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer